System of Environmental Economic Accounting

The SEEA Experimental Ecosystem Accounting Framework

Scoping workshop on business accounting, 16-17 October

Bram Edens, Ph.D.

Jessica Ying Chan

United Nations Statistics Division

United Nations

Overview

- What is Natural Capital Accounting and the SEEA?
- The SEEA Experimental Ecosystem Accounting Framework
  - Examples from the European Union
- Linking private and public sector natural capital accounting approaches

System of Environmental Economic Accounting

WHAT IS NATURAL CAPITAL ACCOUNTING AND THE SEEA

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Limitations of Traditional Accounts

National accounts do not cost depletion or degradation.

Narrow view of environment -> only asset when owned and yielding benefits

Do not capture all economic contributions of nature (e.g. regulating services)

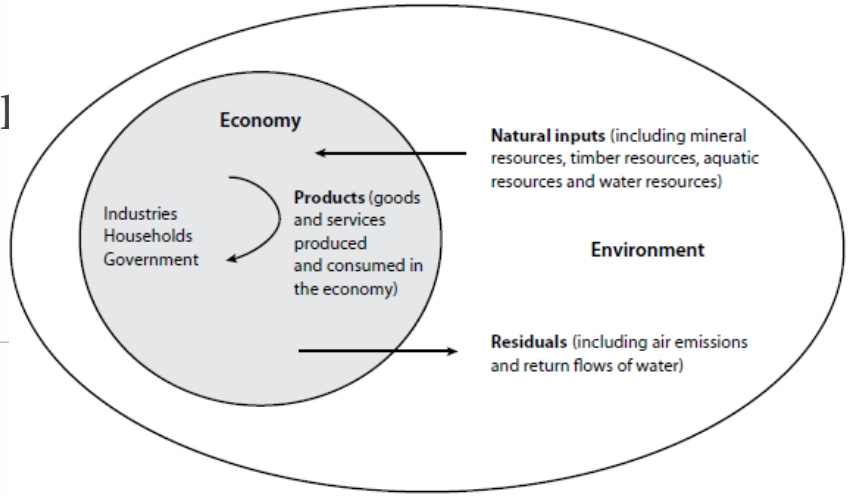
-> Decision makers don't have key information necessary to effectively pursue and track sustainable development.

-> Need for SEEA / NCA !

System of Environmental-Economic Accounting (SEEA)

SEEA as the measurement framework for natural capital accounting

- Work started in late 1980s
- Rio 1992 / Agenda 21 -> recognized the need for satellite accounts
- The **SEEA Central Framework** was adopted as an international statistical standard by the UN Statistical Commission in 2012
- The **SEEA Experimental Ecosystem Accounting** complements the Central Framework and represents international efforts toward coherent ecosystem accounting



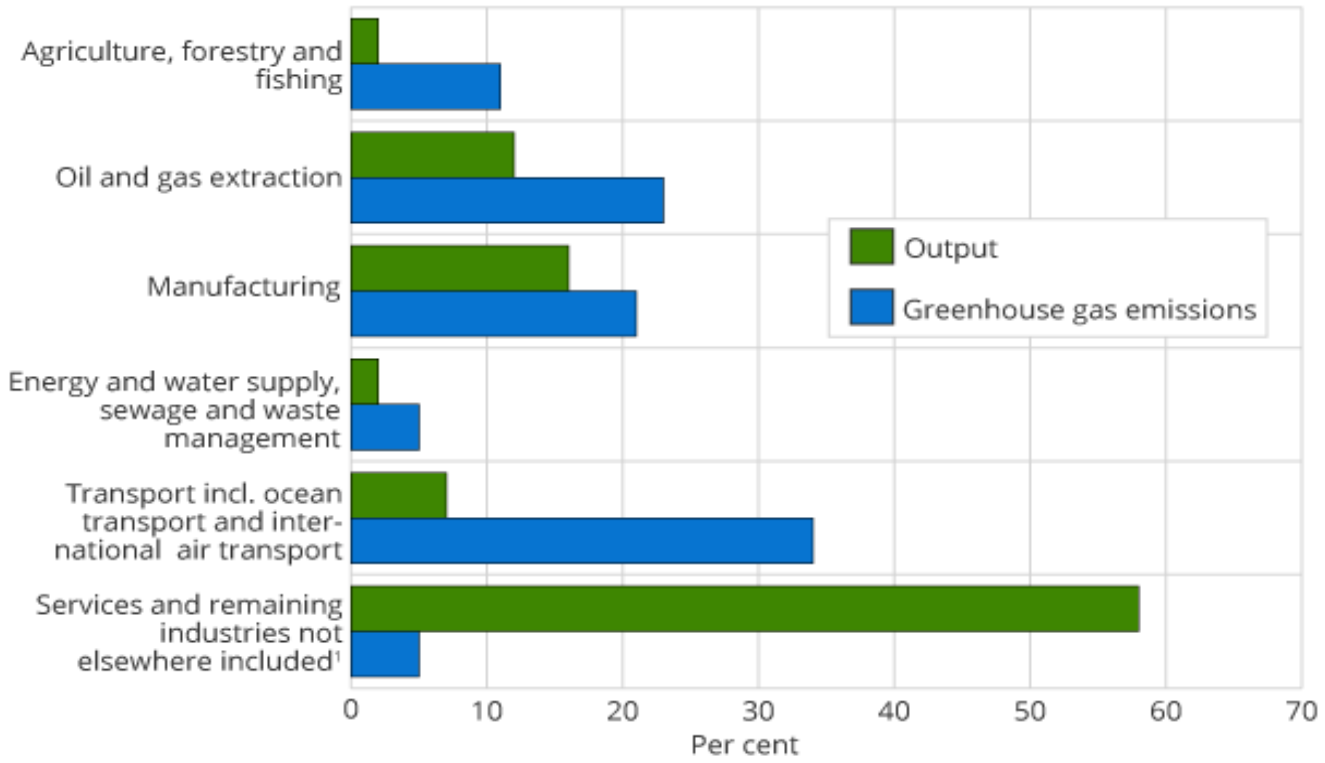
SEEA

SEEA accounts

SEEA-CF (Central Framework)	• **Assets** • **Physical flows** • **Monetary flows**	• Minerals & Energy, Land, Timber, Soil, Water, Aquatic, Other Biological • Materials, Energy, Water, Emissions, Effluents, Wastes • Protection expenditures, taxes & subsidies
SEEA Water; SEEA Energy; SEEA Agriculture, Forestry and Fisheries	Adds sector detail	Asset and flow accounts for • Water • Energy • Agricultural, Forestry and Fisheries
SEEA-EEA (Experimental Ecosystem Accounting)	Adds spatial detail and ecosystem perspective	Extent, Condition, Ecosystem Services, Thematic: Carbon, Water, Biodiversity

Example (Norway): Output and GHG emissions by industry

Figure 3. Greenhouse gas emissions (CO_2-equivalents) and output (fixed 2005-prices) divided according to industries and share of totals. 2012



[1] Services, energy and water supply and construction, education, health and social work and general government administration.
Source: Statistics Norway.

SEEA

BIOFIN MEXICO

Biodiversity Finance Initiative

Implementing Finance Solutions for Biodiversity and Sustainable Development

UNDP

Empowered lives. Resilient nations.

Biodiversity Finance in Mexico

In 2015 public expenditure in biodiversity represented

0.1% of GDP

The biodiversity expenditure has increased **248%** from **2006** to **2015**

USD **$425.5** million ➡ USD **$1,169.8** million

Expenditure in 2015

Ministry of Environment and Natural Resources **62%**

Other sectors **38%**

In the period of **2006 ➡ 2015** others sectors' biodiversity expenditure increased **18%**

Biodiversity Expenditure that Potentially Contributed to the Agendas of SDGs 14 and 15 in 2015

14 LIFE BELOW WATER: $93.2 million USD

$423.0 million USD

$649.2 million USD

15 LIFE ON LAND

Finance Needs Beyond the NBSAP

The total Cost of Environmental Degradation and Resource Depletion (CEDRD) in 2015 was:

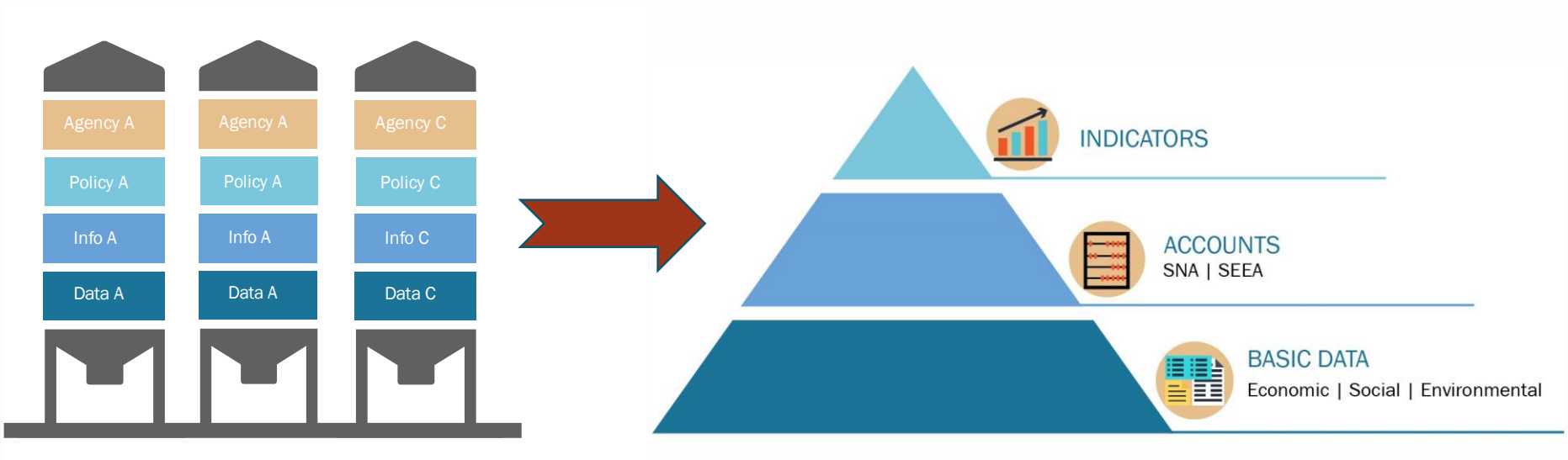
USD **$52.8** billion

USD **$11.6** billion

USD **$41.2** billion

SEEA

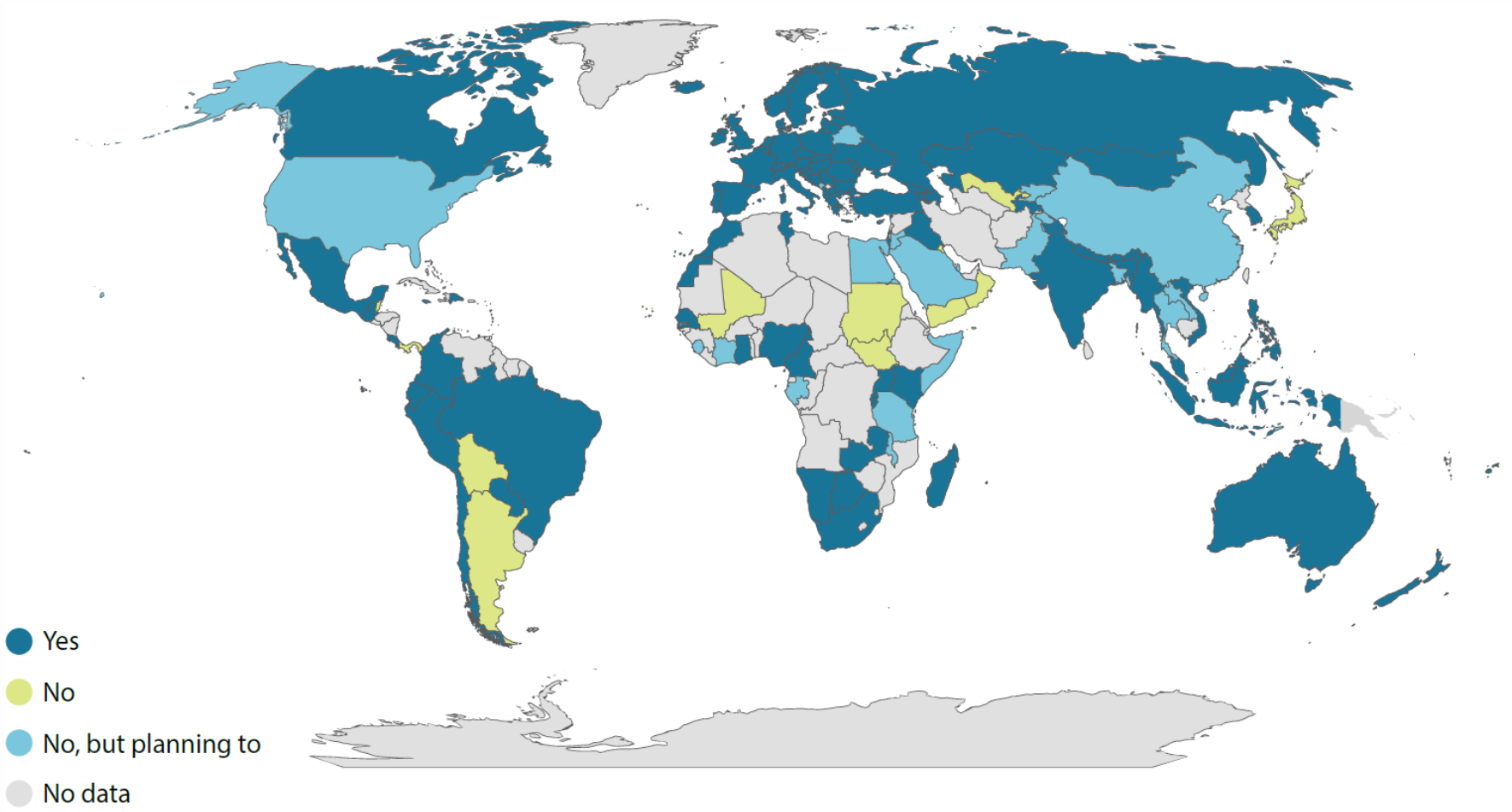
From data silos to integrated information



Benefits of an Accounting Framework for the Environment

- Presents environmental and economic information together in a consistent way
- Allows for environmental data to be integrated with existing System of National Accounts measures
- Provides:
  - International comparability
  - Broad credibility
  - Replicability
- *Transforms **data** into **information***

SEEA Around the World



SEEA

System of Environmental Economic Accounting

SEEA EXPERIMENTAL ECOSYSTEM ACCOUNTING FRAMEWORK

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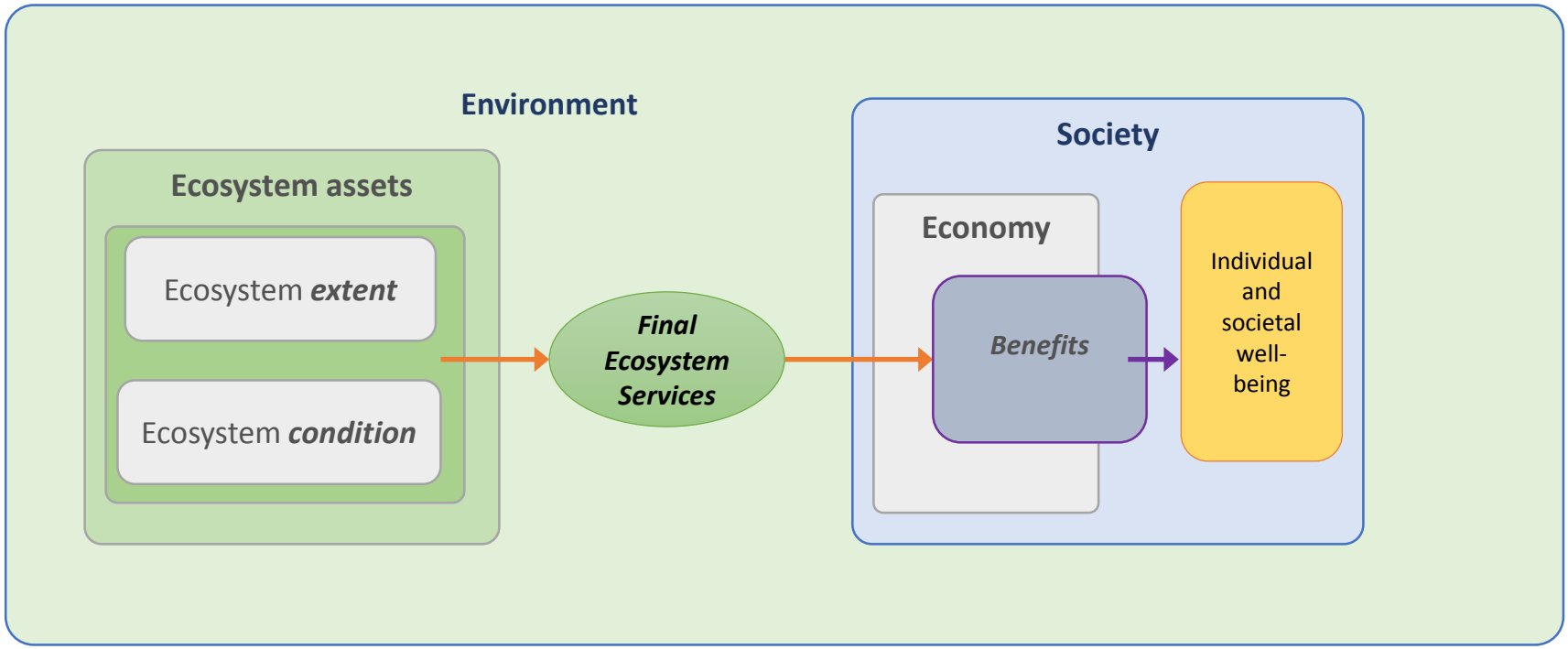
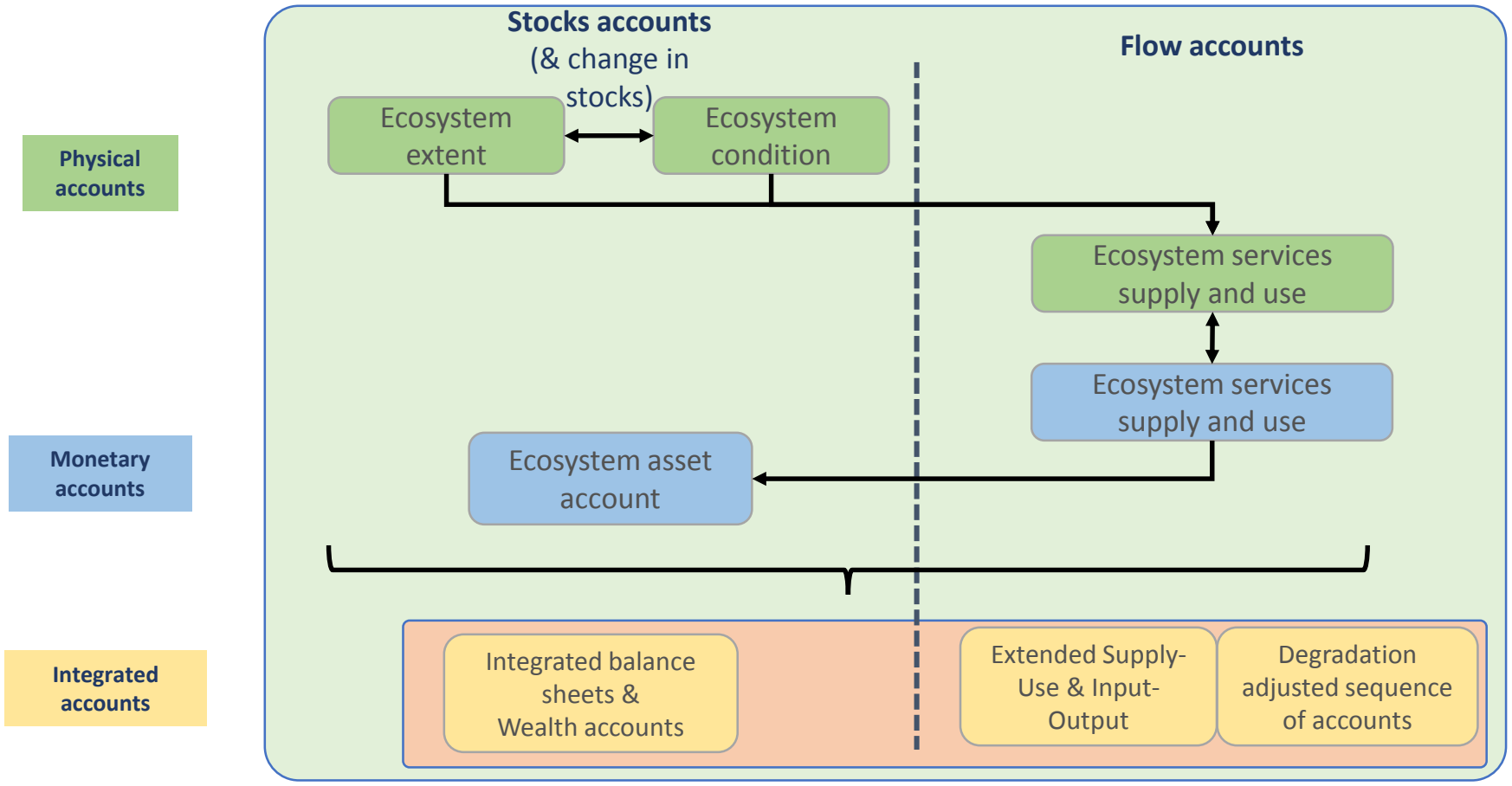
SEEA EEA Conceptual Framework



Core accounts + connections with the SNA



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EXAMPLES
ECOSYSTEM ACCOUNTING IN EU

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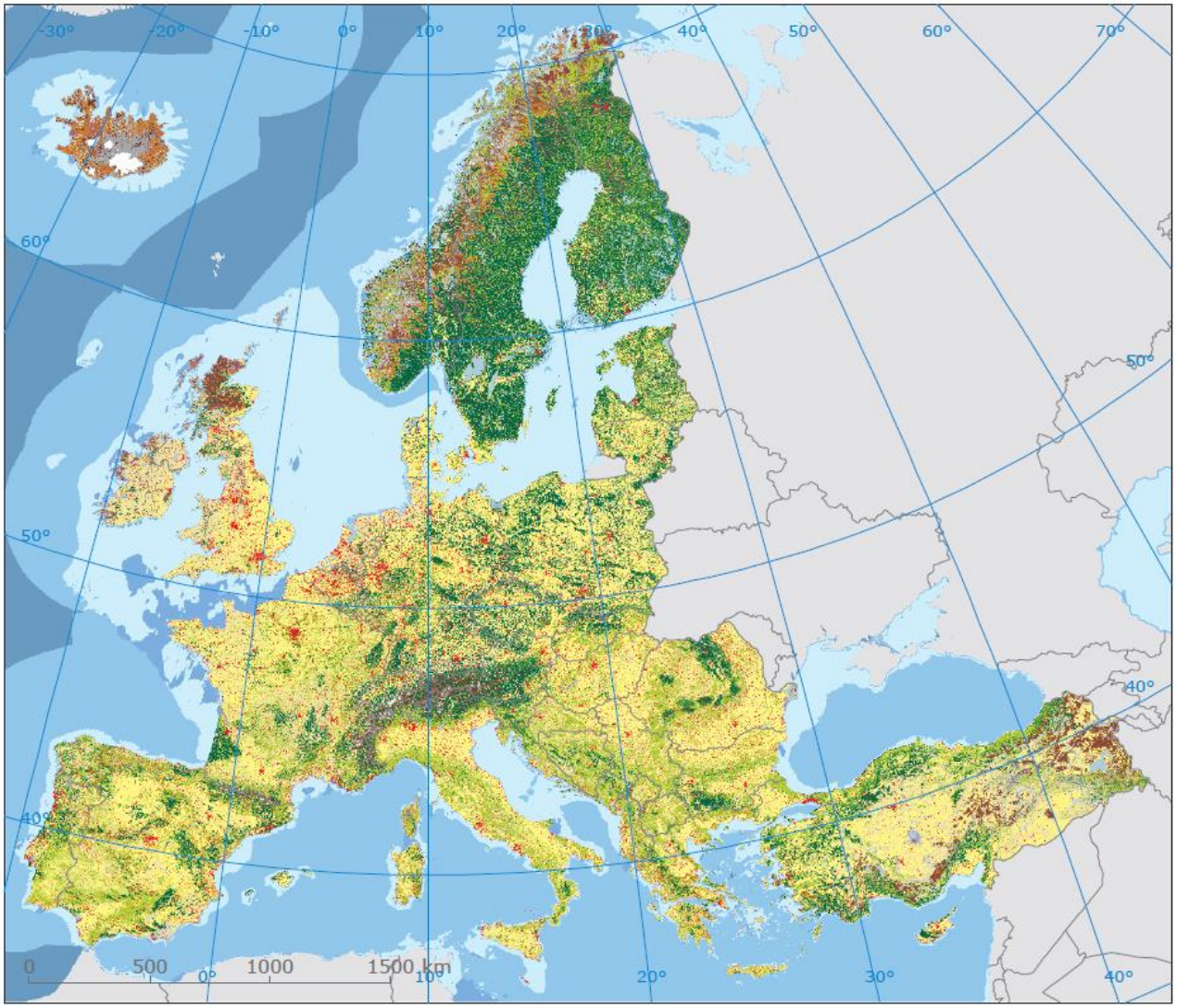
Ecosystem extent account - EU



Ecosystem map (aggregated)

Marine waters
- European regional seas
- Open waters

Marine seabed and coastal habitats
- Sublittoral sediment
- Infralittoral and circalittoral rock and other hard substrata
- Marine habitats
- Coastal habitats

Inland surface waters
- Inland waters and shores

Inland vegetation and habitats
- Tundra
- Arctic, alpine and subalpine scrub and grassland
- Mediterranean-mountain scrub and brushes
- Heathland scrub
- Grasslands and land dominated by forbs
- Regularly or recently cultivated agricultural, horticultural and domestic habitats
- Sparsely wooded grasslands
- Broad leaved deciduous and evergreen woodland
- Mixed deciduous and coniferous woodland
- Coniferous and broad leaved evergreen woodland
- Mires, bogs and fens

Inland unvegetated or sparsely vegetated habitats
- Screes, inland cliffs
- Snow or ice-dominated habitats
- Miscellaneous inland habitats with very sparse or no vegeation

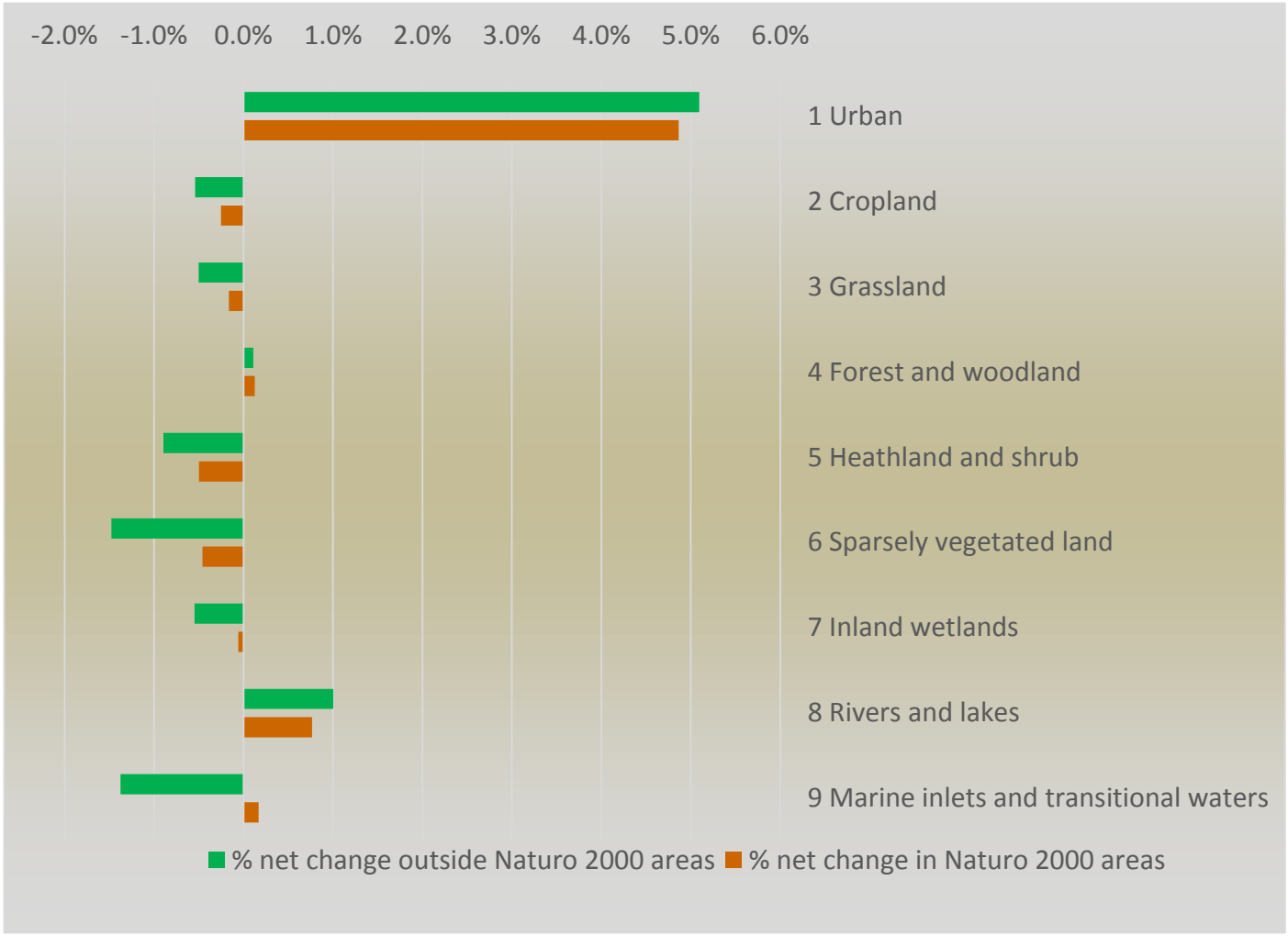
Human made constructions and habitats
- Constructed, industrial and other artificial habitats

Non classified areas
- Unclassified areas
- Outside area of interest

Source: EEA, 2015a, *European ecosystem assessment: Concept, data, and implementation,* EEA Technical Report No 6/2015, European Environment Agency

- RESULTS –

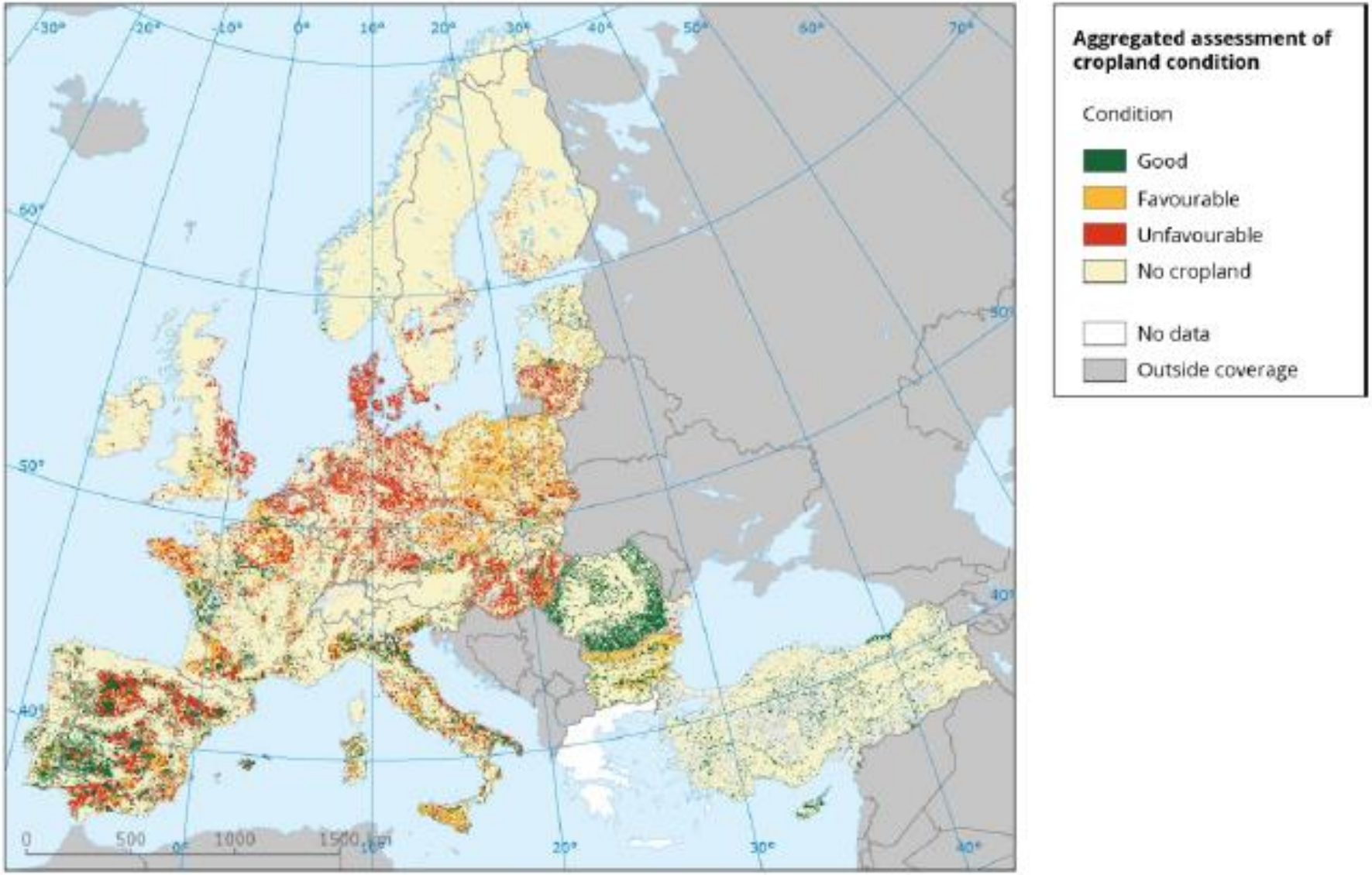
EEA: Net changes in ecosystem extent inside and outside of Natura 2000 (=protected) areas, 2000-2012



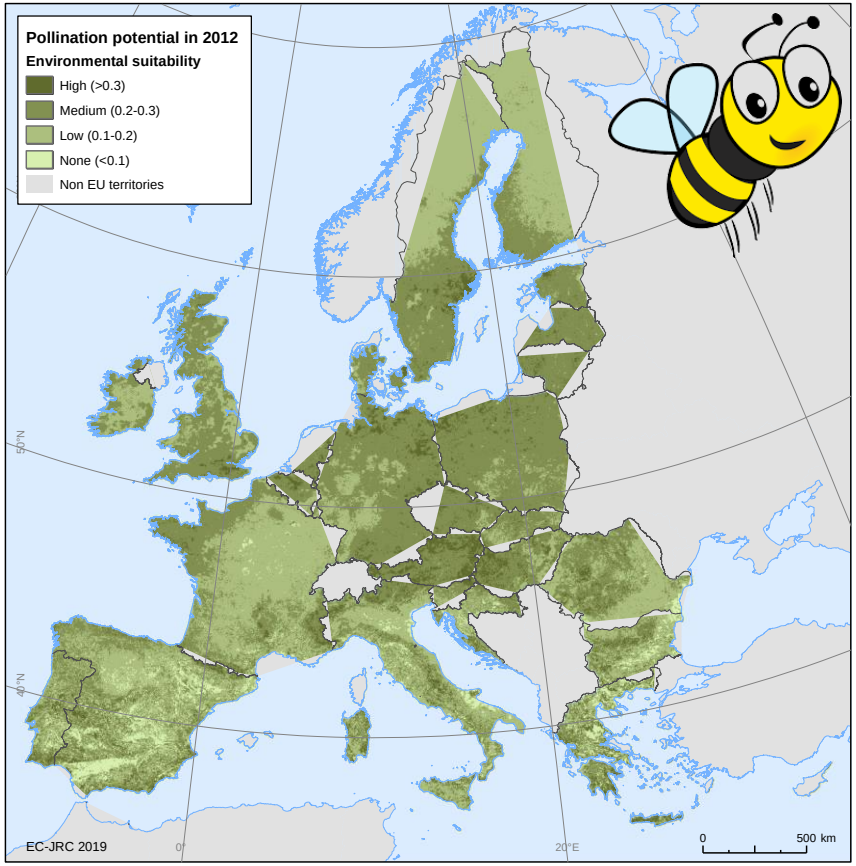
Source: EEA, CLC accounting layers 2000, 2006, 2012.

EEA May 2019: https://www.eea.europa.eu/publications/natural-capital-accounting-in-support/

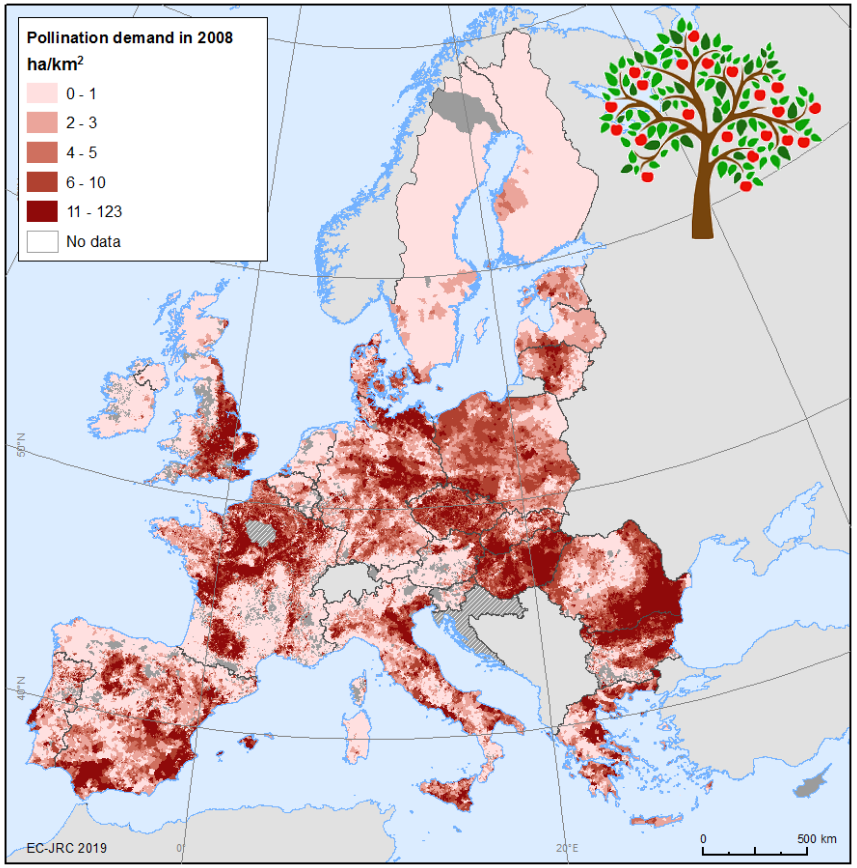
Ecosystem condition account - EU



Assessing ES
Crop pollination



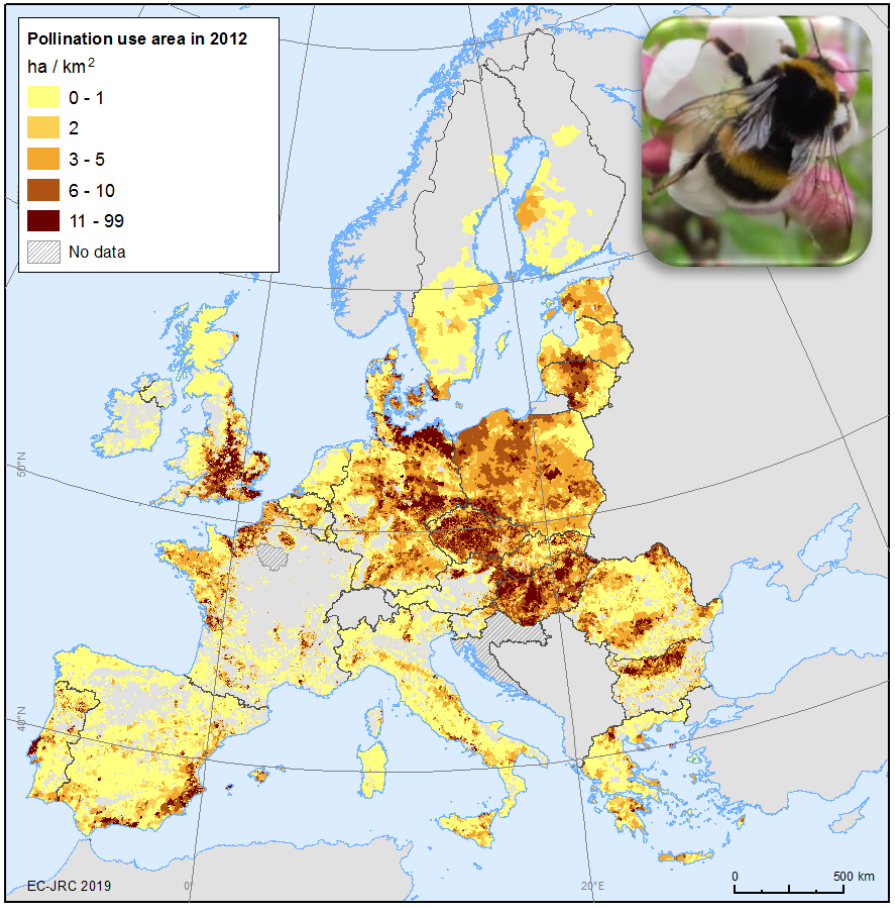
Pollination potential



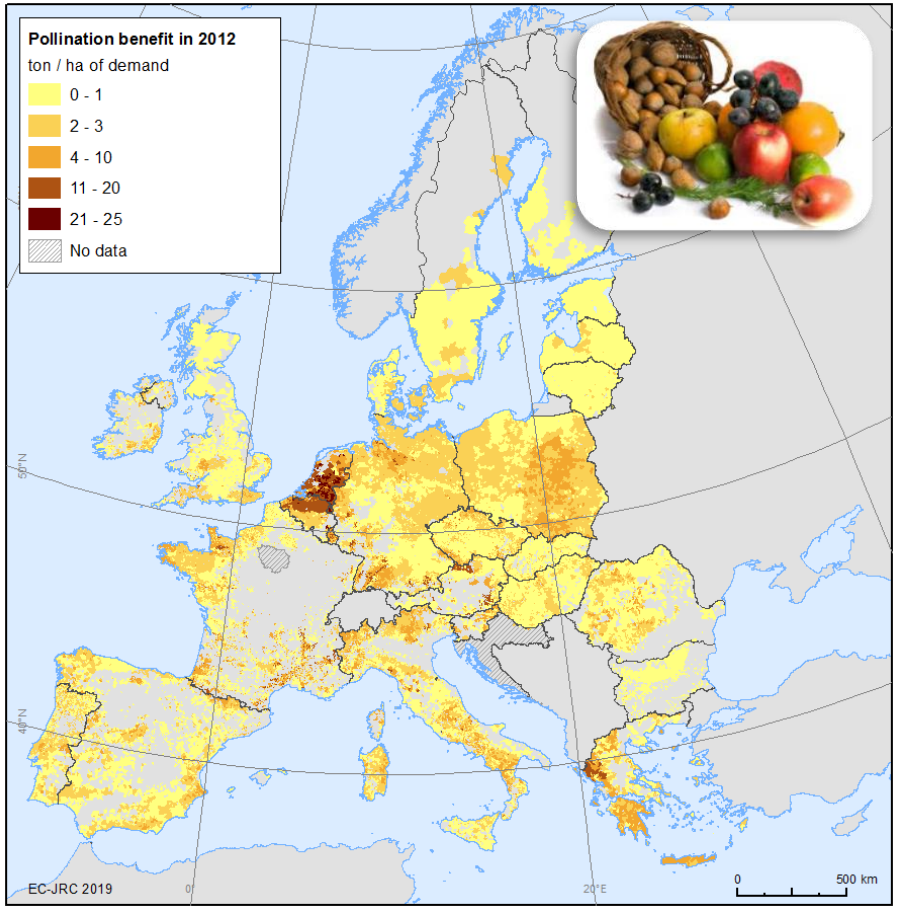
Pollination demand

European Commission

Crop pollination

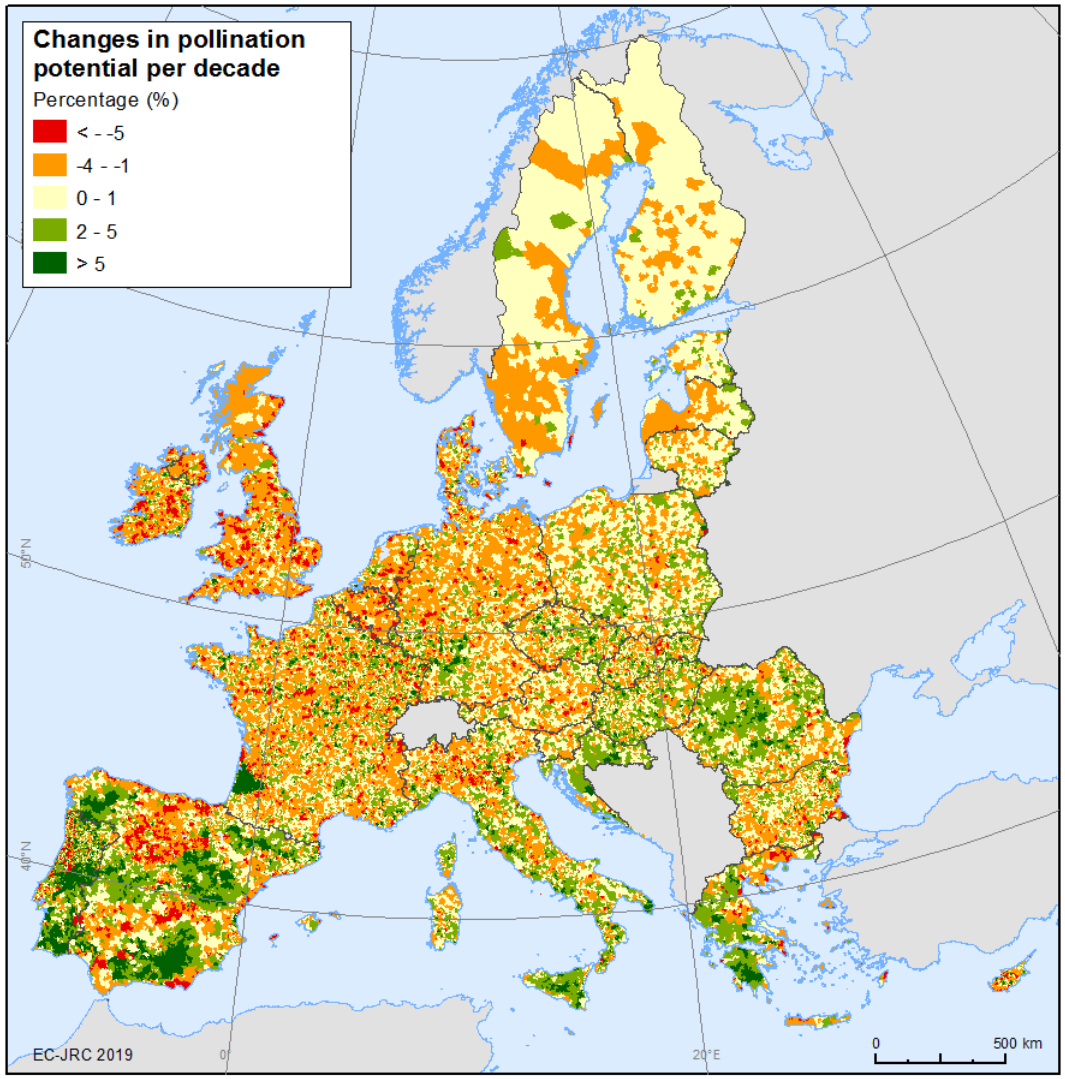


Use area (overlap)



Benefit: yield attributable to wild insect pollinators

Crop pollination

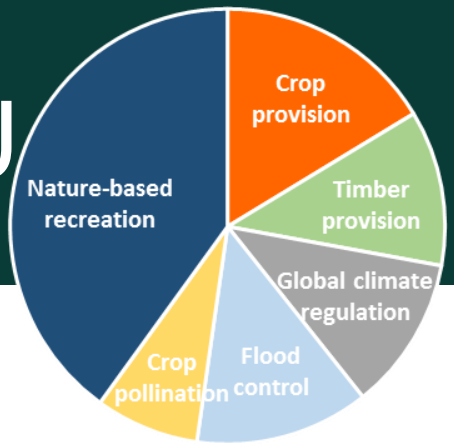


Useful for the integrated narratives

IPBES: “decline of wild pollinators in North West Europe”

European Commission

Supply table for the EU



Year 2012, million EUR	Ecosystem type									Total
Ecosystem service	Urban	Cropland	Grassland	Heathland and shrub	Woodland and forest	Sparsely vegetated land	Wetlands	Rivers and lakes	Coastal and intertidal areas	
Crop provision		20,560								20,560
Timber provision					14,540					14,540
Global climate regulation	20	150	850	20	13,330	20	0	NA	NA	14,390
Flood control	90	1,020	3,130	360	11,390	0	330	NA	NA	16,320
Crop pollination		9,720								9,720
Nature-based recreation	80	4,070	7,480	3,100	30,720	1,350	2,300	1,020	280	50,400
Total	190	35,520	11,460	3,480	69,980	1,370	2,630	1,020	280	125,930
Value in EUR/km^2	880	22,090	22,610	19,250	44,010	23,410	26,890	9,320	14,530	28,740

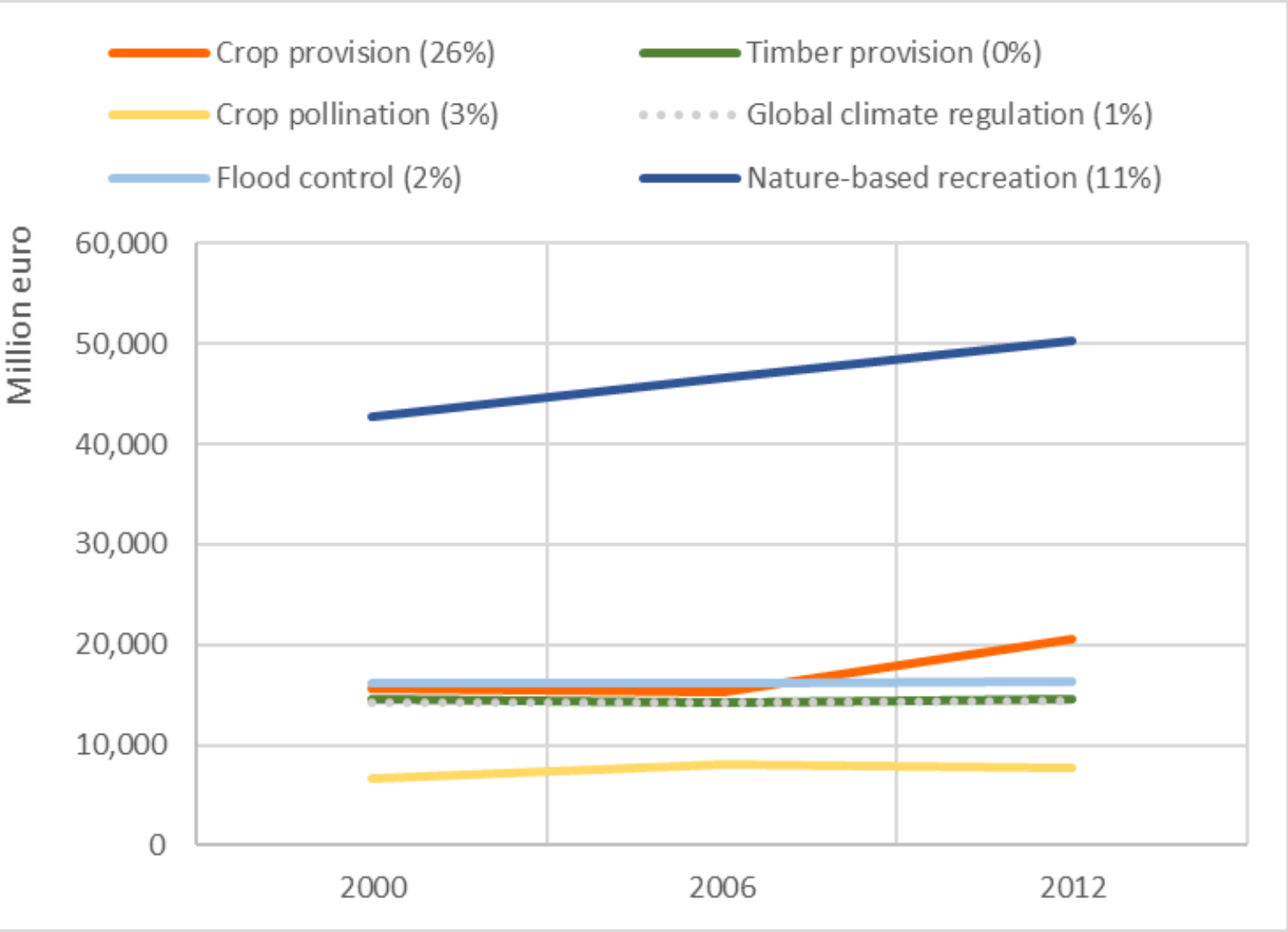
NA: not assessed

Values rounded to the nearest tens

56,370 euro/km^2 of green urban area

European Commission

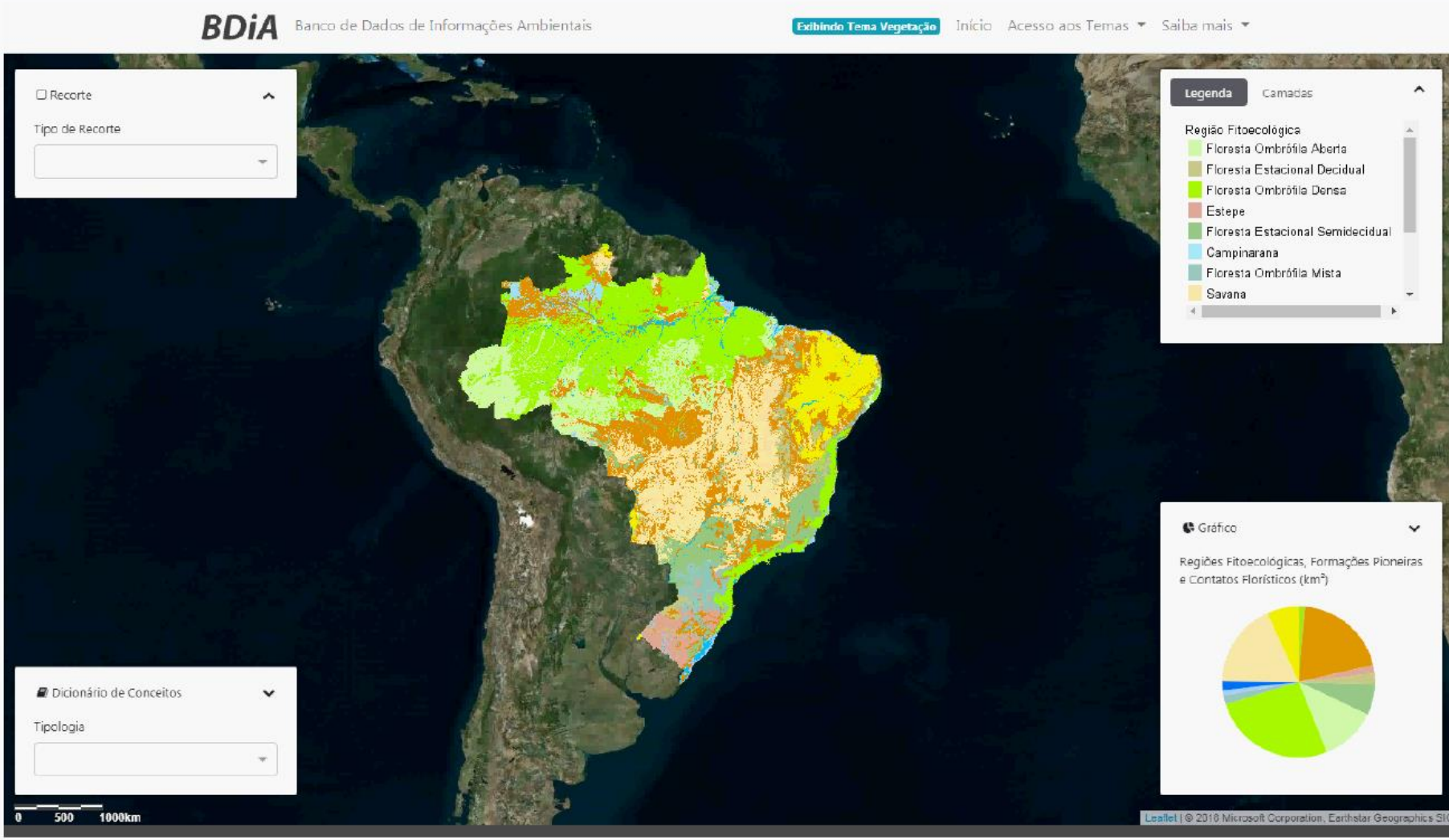
Trends for ecosystem services



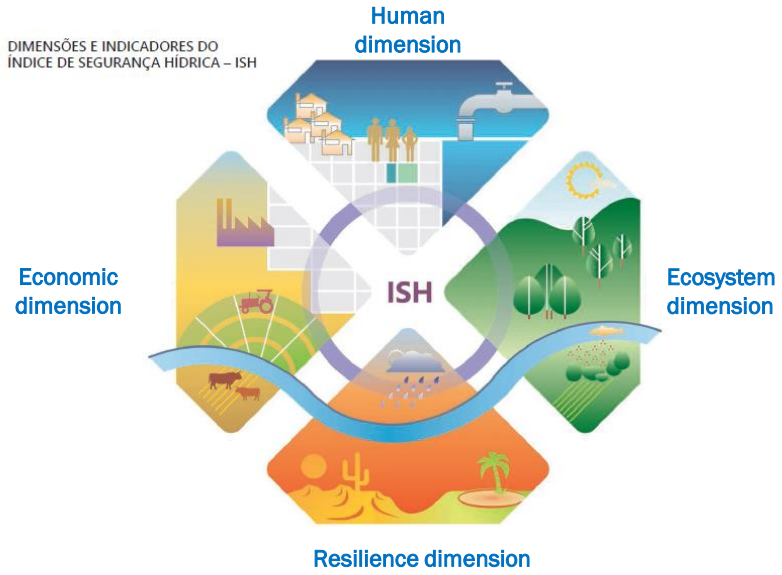
European Commission

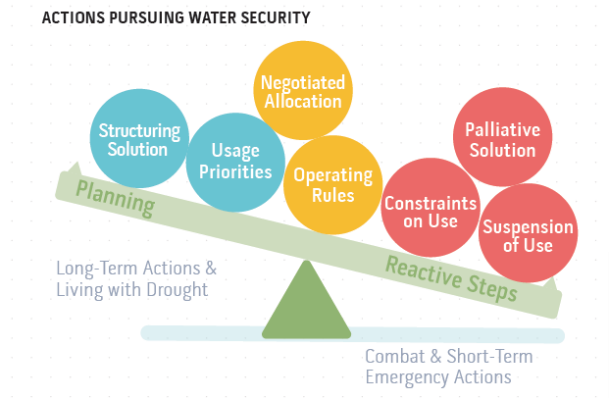
IBGE | Instituto Brasileiro de Geografia e Estatística

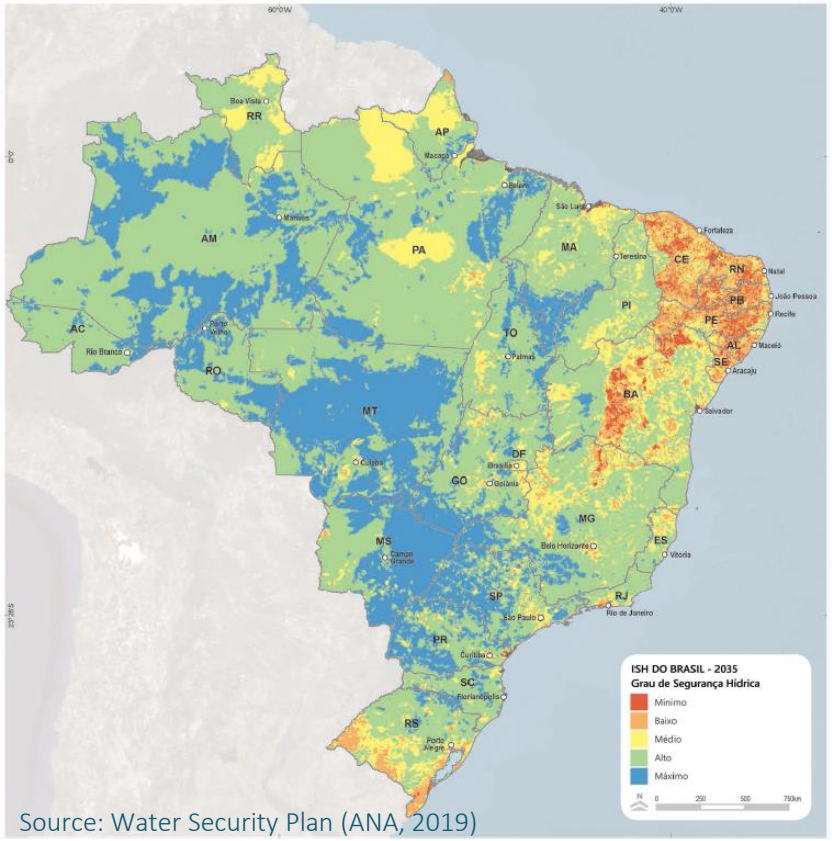
Níveis de legenda – conforme escala em tela (zoom)



Water stress – Water Security Index (Brazilian Water Security Plan)







Source: Water Security Plan (ANA, 2019)

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Source: ANA

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LINKING PRIVATE AND PUBLIC SECTOR NCA APPROACHES

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The need

- Public sector
  - > Macro level accounts depend on business level data
  - > Corporate sustainability accounting and reporting support SDGs and SDG monitoring (12.6.1 and beyond)
- Private sector
  - > Lack of ready access to robust data for businesses
  - > Data gaps – impacts and dependencies, spatial and temporal data at relevant scales, data that is fit for purpose
- Alignment and shared approaches are possible

Potential benefits

- Alignment of national and corporate sustainability will:
  - > Reduce the **reporting burden** for businesses by aligning business surveys with corporate reporting on the environment
  - > **Streamline** the process of using business-level statistics in the production of national SEEA accounts and **improve quality**
  - > Provide a set of **common definitions** and concepts so businesses can use statistical products efficiently

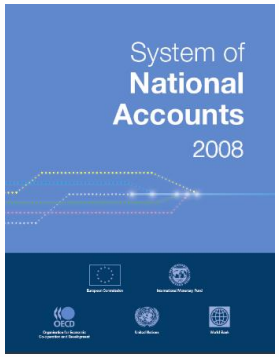
Links with business accounting

IFRS

GAAP

Business surveys
Structural business statistics

Benchmarking
Sector-specific statistics



GRI Empowering Sustainable Decisions

NATURAL CAPITAL COALITION

SASB Sustainability Accounting Standards Board

E-GAAP

and more

?

Advancements by the statistical community

- Information on flows (pressures, benefits) vs. information on stocks and issues of condition
- Standardization of definitions, classifications
- Benchmarks and reference levels
- Data sources and their scope
- Tools (remote sensing)
- Methodology (e.g. valuation)

Alignment issues

- Substance:
  - Reporting units (enterprise / establishment)
  - Scope (upstream / downstream / supply chain / value chain)
  - Concepts and definitions
  - Principles for disclosure (materiality vs thresholds)
  - Data
- Complex landscape
  - Public sector—sustainability and the environment are more and more cross-cutting
  - Private sector—multiple organizations and initiatives for standards, reporting, frameworks

THANK YOU

seea@un.org